DOCUMENT RESUME

ED 065 058 HE 003 190

TITLE Meeting Ohio's Needs for M.D.s Through 1980 and Beyond.
INSTITUTION Academy for Educational Development, Inc., New York, N.Y.
PUB DATE 31 Dec 70
NOTE 91p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Educational Planning; *Health Personnel; *Higher Education; *Manpower Needs; *Medical Education; *Physicians; Statewide Planning

ABSTRACT

Today health care in the U.S. is facing a shortage of personnel that has never been surpassed. All states must begin to resolve for themselves the problems that are cccurring and will occur within the next decade. This document presents the results of a study made in the state of Ohio to determine the present needs of medical manpower in the state, the projected need for physicians, and the methods by which a shortage of physicians may be alleviated. Planning for such problems requires that several central questions be answered: (1) What is the relationship of medical education to the means for delivery of medical care to the people of Ohio, and how can this relationship be improved? (2) How many Doctor of Medicine degree recipients should be graduated annually in Ohio by 1980, and how do current expansion plans of the 4 existing colleges of medicine compare with these needs? and (3) If more Doctors of Medicine are needed by 1980 than will be supplied through current expansion plans, where should one or more new colleges of medicine be located? Further, should plans for new medical schools call for the same kind of large-scale medical center that has embodied the best in medical education in past decades, or should expansion take the form of a bold new departure in medical education? These and other questions are considered. (HS)

ED 065058

MEETING OHIO'S NEEDS FOR MDs THROUGH 1980 AND BEYOND

December 31, 1970

Report prepared by a Panel of Advisors appointed
by the Academy for Educational Development

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

HE 00 3190

THE ACADEMY FOR EDUCATIONAL DEVELOPMENT, INC.
437 Madison Avenue
New York, New York 10022

ACADEMY FOR EDUCATIONAL DEVELOPMENT, INC.

Board of Directors

SAMUEL M. BROWNELL (Chairman)
Professor of Urban Educational Administration, Yale University Graduate School.

ALVIN C. EURICH
President, Academy for Educational Development; Chairman, Educational Research and Development Division, FAS International, Inc.; Chairman of the Board, Academy of Religion and Mental Health.

SIDNEY G. TICKTON
Executive Vice President and Treasurer, Academy for Educational Development.

JOSEPH S. ISEMAN (Secretary)
Partner, Paul, Weiss, Rifkind, Wharton, and Garrison.

ROBERT O. ANDERSON
Chairman of the Board and Chief Executive Officer, AtlanticRichfieldCompany.

FAIRFAX M. CONE
Chairman, Board of Trustees, University of Chicago; Founder and Director, Foote', Cone & Belding.

GILBERT GRANET
President, FAS International, Inc.

ROBERT V. HANSBERGER
President, Boise Cascade Corporation.

THEODORE W. KHEEL
Partner, Battle, Fowler, Stokes, and Kheel.

THEODORE LEVITT
Professor of Business Administration, Harvard University Graduate School of Business Administration.

LOUIS B. LUNDBORG
Chairman of the Board, Bank of America.

FRED LUDEKENS
Chairman of the Board, FAS International, Inc.

HERBERT R. MAYES
Director and Consultant, McCall Corporation; Director, Saturday Review; Formerly President, McCall Corporation.

JAMES A. McCAIN
President, Kansas State University.

NEWTON N. MINOW
Senior Partner, Leibman, Williams, Bennett, Baird and Minow.

JAMES O'BRIEN
Vice President and Director, Standard Oil Company of California.

ACADEMY PANEL

ALVIN C. EURICH, Chairman
President, Academy for Educational Development; Chairman, Academy of Religion and Mental Health; formerly President of the Aspen Institute for Humanistic Studies; Executive Director, Education Division, Ford Foundation; Vice President, Hospital Council of Greater New York; member of the Surgeon General's consultant groups on medical education, mental health activities, and nursing.

KENNETH E. PENROD
Vice Chancellor for Medical and Health Services, State University System of Florida; formerly Provost, Indiana University Medical Center.

WILLIAM H. STEWART
Chancellor, Louisiana State University Medical Center; formerly United States Surgeon General.

REXFORD G. MOON, JR., Secretary
Vice President and Director of Studies, Academy for Educational Development.

CONTENTS

LETTER OF TRANSMITTAL	iv
INTRODUCTION: THE NEW LEADERSHIP ROLE FOR MEDICAL SCHOOLS	1
OHIO'S PROJECTED NEEDS FOR MDs	16
TRENDS TOWARD EDUCATING BETTER MDs IN FEWER YEARS	33
A POSSIBLE STATE PLAN	52
A PLAN FOR NORTHEASTERN OHIO	66
A NEW INSTITUTION IN CONCEPT: THE HEALTH SCIENCES GRADUATE CENTER	75
SUMMARY AND CONCLUSIONS	79

ACADEMY FOR EDUCATIONAL DEVELOPMENT, INC.
437 MADISON AVENUE
NEW YORK, NEW YORK 10022
(212) 758-5454

December 31, 1970

Dr. John D. Millett
Chancellor
Ohio Board of Regents
88 East Broad Street
Columbus, Ohio 43215

Dear Dr. Millett:

Some months ago you asked if some of my associates and I would look into the need for additional training opportunities for medical doctors in the State of Ohio during the next decade and beyond.

I asked Dr. Kenneth Penrod, Vice Chancellor for Medical and Health Services in Florida, and Dr. William Stewart, Chancellor of the Louisiana State University Medical Center and former United States Surgeon General, to work with me and I'm pleased to share with you this copy of our report.

We undertook this assignment at a time when from every corner of the nation great concern was being expressed about the status of health care and the need for more physicians. The severity of the nation's concern was expressed by President Nixon when he said recently, "This nation is faced with a breakdown in health care unless immediate concerted action is taken."

Ohio's legislature, conscious of the continuing need in Ohio to improve health care and confronted by growing pressures to establish one or more new medical schools in Ohio, asked for a study of the needs in northeastern Ohio for another medical school.

We have given extensive study to the education of medical doctors in Ohio. We are impressed with the efforts which the existing medical schools are making to increase their capacity to train more

physicians and their willingness to intensify this effort through this decade and beyond providing there is appropriate financial support from the state.

Providing more doctors as well as other health services personnel, while very important, offers little assurance that the system of health care delivery will be adequate to the needs of the people of Ohio in the future. We believe a much closer relationship must exist in the future between the training of physicians and the delivery of health care if society's needs are to be met. It is to this unsolved social problem that our report is fundamentally addressed.

The medical educators of Ohio have been very helpful to us in this study. Also a number of the universities have prepared excellent reports on their medical school capabilities for the future. We thank all of them for their help; their dedication to the needs of the people of Ohio is extremely assuring.

My associates and I stand ready to be of assistance to you in any way that we can in carrying out the recommendations of our report.

Sincerely,

Alvin C. Eurich

Alvin C. Eurich
President

INTRODUCTION:
THE NEW LEADERSHIP ROLE FOR MEDICAL SCHOOLS

The major challenge facing medical educators today is to lead the way in improving the nation's health care. That challenge calls for them to achieve in health care for all citizens what they have achieved in developing the powers of biomedical sciences to heal individuals. The need for them to attack deepening health care problems was well expressed by Quigg Newton, President of the Commonwealth Fund, in his recent annual report. He stated:

> "The emergence of this imperative is challenging medical schools to embark on a historic new phase in the exercise of their stewardship as university institutions: namely, active participation in the improvement and reform of the country's arrangements for providing health and medical care. That a pervasive and deepening crisis already exists is not only widely acknowledged, it is also a matter likely to become a central issue of public debate in the years immediately ahead. And this is an issue from which medical schools and their parent universities cannot stand aside, if they are to be a force in the resolution of a critical set of problems of our changing and troubled society."

Medical education confronts far more than a pressing agenda for research and analysis as a result of this crisis. Growing public frustration with the shortage and high cost of medical services has generated widespread clamor for reform. The demand this poses

to the nation's university medical centers -- visible symbols of organized problem-solving in medicine -- is a demand for leadership.

The response of medical schools to the health care crisis

Many thoughtful medical educators believe that they can and must mount major efforts in response. Reflected in their convictions about this response are three general conclusions:

- Helping solve urgent national problems is consistent with the best traditions of American university education -- particularly medicine, which, of all branches of learning, is most immediately engaged in answering human need.

- Research in the basic life processes and the mechanisms of disease is a vital need that the university medical center must continue to meet, even while developing a capacity for leadership in health care.

- Entry into the field of health and medical care must accordingly be approached as an essentially new and additional academic enterprise, which, while not to be undertaken at the expense of biomedical research, will require a comparable

degree of effort and support. This does not mean that medical centers would try to provide complete medical services for which communities should be responsible. It envisions, rather, the development of community-based experiments, demonstrations, and related research and educational programs that seek to create trend-setting patterns for improved health care

The medical schools' heightened concern for health care has led them to introduce or propose many different new endeavors. These include:

- Preparing new types of physicians and other personnel for leadership roles in the design, operational planning, and management of health institutions and systems.

- Collaborating with community hospitals, clinics, and doctors to extend the base of medical education far beyond the teaching hospital. The aim in such broadened affiliations is to train all students in the full range of health and medical problems and how those problems are dealt with in the community setting.

- Taking the lead in forging a coherent, region-wide system of care through active ties with all types of hospitals and with local and regional professional groups and planning agencies.

- Designing and launching experiments and demonstrations in new modes of medical care, such as family-care health teams and hospital-related primary care centers -- with the aim of transferring the best of this experience to the community and regional systems.

- Developing and testing new modes of financing personal health services -- for example, by helping to establish prepaid insurance coverage for defined population groups served by comprehensive care systems.

- Training new types of allied health professionals, such as nurse-practitioners and physician assistants to whom the doctor can delegate many of the patient care tasks that now comsume much of his time and energy.

. Designing and developing electronic data-processing and communications systems. On the one hand, these could serve as effective tools for deploying medical resources by providing for consultations with centrally located specialists, distant diagnoses of rare or complex conditions and special diagnostic tests. On the other hand, such systems could monitor and analyze the quality and costs of patient care at institutional, community, and regional levels.

New departures in efforts to expand medical school enrollments

Combinations of initiatives like these, vigorously pursued, will lead in time to much better use of available physician manpower than at present. But the shortage of doctors has become so acute that the demand for physician services, however efficiently provided, cannot be met without a prompt and sizeable increase in new medical graduates.

In this task, too -- that of expanding enrollments while advancing standards -- medical schools are rising to the need for health care leadership. They have begun educating more students with present facilities by introducing new three-year MD programs. Three-year

programs equally or more effective than the prevailing four-year curricula are increasingly made possible, in part, by applying modern learning theory and related teaching techniques and technologies. Medical schools have also begun introducing plans with collegiate and graduate faculties, especially in the basic sciences, to use college and graduate school facilities for part of formal MD education. This effort promises both to reduce the years of MD training and to draw on extensive existing facilities for the training of more MD students.

Range of the new medical school role in health care

If medical schools and their universities are to have a significant impact on the organization and delivery of health services, they must be willing to plan and conduct their programs within the exacting milieu of real problems. The very essence of academic medicine is that teaching and research must be based on responsibility to the individual patient. This principle applies as well to the production of trained talent and new knowledge to deal effectively with the needs of patient populations -- the prime concern of the health care field.

Accordingly, university programs in health care require extensions of the base of activity throughout the reality of unmet needs in the

greater community. Innovations previously mentioned -- such as experiments and demonstrations in new modes and systems of care, and new cooperative teaching and research programs with community hospitals and physicians -- represent valid opportunities to be pursued in a variety of settings, rural as well as urban. But these are also steps which will place medical schools and their universities in new and dynamic relationships with the interests and institutions of society -- relationships in which medical education will, in effect, become an advocate and instrument of change.

Medical schools will continue to be concerned with practice and health care in the broadest sense while developing their new change-initiating role. That scope of responsibility to be addressed in all their work includes research, treatment, comprehensive patient care and the complex problems of rehabilitation.

To reach a position of competence and authority concerning needed action on health care, the medical schools face one of the most formidable tasks in their history. They must greatly augment the present scale of pertinent research, qualified faculty and teaching materials and methods. While meeting these needs, moreover, medical schools

will have to forge extensive new ties within the rest of the university and the surrounding society.

Action cannot be delayed even though all these tasks call for a long-term, arduous effort. Increasing numbers of medical educators share the view that the pace of deterioration in the nation's health care demands that university medical schools somehow marshal the will and the knowledge for early and effective intervention. Many believe that medical education in the United States has, in fact, arrived at an historic turning-point -- the moment when it must move decisively to become a steward of medical care as well as medical science.

Basic factors in planning future medical education in Ohio

All these far-reaching national trends obviously hold significance for medical education in Ohio. They focus attention on the basic factors for which to provide in planning the future of medical education in the State. In this light, such planning requires that three central questions be answered. These are:

1. Most fundamentally, what is the relationship of medical

education to the means for delivery of medical care to the people of Ohio, and how can this relationship be improved?

2. Most immediately, how many Doctor of Medicine degree recipients should be graduated annually in Ohio by 1980? How do current expansion plans of the four existing colleges of medicine compare with these needs?

3. If more Doctors of Medicine are needed by 1980 than will be supplied through current expansion plans, where should one or more new colleges of medicine be located? Should plans for new medical schools call for the same kind of large-scale medical center that has embodied the best in medical education in past decades, or should expansion take the form of a bold new departure in medical education?

It is vital to understand, first of all, that simply training more Doctors of Medicine will not automatically solve health care problems. This point is established in a forthcoming report by the Association of American Medical Colleges (the report on the Bicentennial Anniversary Program for the Expansion of Medical Education, known as the Howard report). The report declares:

> ". . . it must be clear that merely increasing the number of MD degrees awarded will not in itself solve the problem of a more even geographical distribution of physicians nor physician services for the urban and rural poor. Neither can action taken to secure such an increase assure a more appropriate and rational pattern of specialty services or an immediate and direct improvement in health services."

Answering the question of how many MDs a state or the nation should produce is subject to further complications. These stem essentially from the fact that the MDs produced are free not to enter the specialties and geographic areas with greatest health care needs. The AAMC's Howard report also ably explains this problem, saying:

> "It is even more difficult to project the number of MDs that should be educated to meet the needs of health services. This is due to the many variables involved and particularly to the nature of medical practice and the delivery of health services today in the United States. Present arrangements are essentially free floating with few restrictions on the number of physicians in each of the specialty areas, their geographic distribution, and the organization of medical practice. In such a situation, as has been pointed out above, there is no assurance that an increased number of MDs will result in a distribution of physician services that will meet the most pressing needs for health care. Assuming that the number of MD graduates could be increased to a level where the sheer pressure of numbers would, by itself, force physicians into areas and types of practice where major shortages exist does not seem to be a rational basis upon which to formulate public policy in medical education."

Crash programs to influence current supplies of physicians to shift to areas of greatest need would only leave shortages in other areas, the report demonstrates. Its argument on this score includes:

> ". . . Thus, dependence upon changes in the health service system as an immediate and sole means to overcome the overall physician shortage also does not seem to be a reasonable basis for planning for medical education, at least at this time."

For the nation, the AAMC accordingly recommends what leaders in Ohio believe to be essential for the State -- the training of more MDs. Its program calls for increasing the nation's pool of MDs by 50,000 more physicians between now and 1980. This would be done by creating places for a total of 15,000 entering medical students by 1976 -- through the founding of 12 new medical schools, and expanding the first-year classes of existing schools by an average of 15 students each. In arguing for the 12 new schools, the AAMC said:

> "We believe that the best interests of the nation will be served if a portion of the required increment of production of physicians is met by the development of new schools. Special attention should be given to the development of new schools in geographical areas that are at present without medical schools and that have universities with graduate programs in the physical and biological

> sciences, in order that such resources could be used as the basis for the development of the new medical schools."

These 12 new medical schools would raise the levels of health care in their regions, in part by securing clinical facilities through affiliation with the hospitals already in the region. In this connection, the report states:

> "The effective utilization of clinical resources already existing in such areas, with appropriate and necessary modifications, must be encouraged in order to minimize the need for additional teaching hospitals and other clinical facilities, which are notoriously costly. It is recognized that the presence of a medical school in an area favorably influences the attractiveness of the area for physicians and the level of medical practice. It is for this reason that geographic distribution of medical schools is stressed."

The report also cautions against taking too optimistic a view of the improvements in health care that might be attained rapidly through changes in medical school affiliations.

These joint themes of larger enrollments and leadership in health care for medical schools figure prominently in another authoritative current analysis. This is the report, Higher Education and the Nation's Health, that was recently issued by the distinguished Carnegie

Commission on Higher Education. The Commission views the lack of sufficient MDs and allied health professionals as a grave national problem, declaring:

> "The most serious shortages of professional personnel in any major occupation group in the United States are in the health services."

The report asserts at the outset that medical and dental schools must not merely increase enrollments (by at least 50 per cent in this decade -- which would mean at least a total of 16,500 entering students by 1980). More importantly, the schools must restructure their educational and service programs:

> ". . . in such a way as to play a major role in meeting the nation's need for a more adequate system of health care."

Medical schools would exert potent leverage in improving health care through an expanding role urged by the Commission (for the nine new schools it proposes by 1980, as well as all existing schools). In addition to carrying on their traditional functions, all medical schools would cooperate with other community agencies to improve the organization and delivery of health care. Each medical school would serve, the Commission recommends, as the:

> ". . . coordinating hub and reservoir of expertise for a system of institutions consisting of area health centers, neighborhood health centers, rural clinics, hospitals, group practice organizations, and medical societies."

Each medical school would also work with comprehensive community colleges and high schools to help plan training programs for allied health workers. It would further provide, in cooperation with professional associations, continuing education for all kinds of health manpower.

Stressing the medical school's future role in health care, the Commission recommends supplementing the major university health science centers with a satellite network of new institutions -- 126 area health education centers. These would be located in sparsely populated areas far from university centers, and in congested urban areas where the established centers cannot handle the load. In this conception, the university centers would provide most of the facilities for extremely specialized patient care, plus educational programs for interns and residents and clinical experience for allied health students. The area centers would draw interconnections with university centers to assist community and neighborhood health care facilities and private practitioners.

The American Medical Association, in addition, recently commented with approval on current shifts in medical education toward steadily increasing involvement in health care. An editorial in the Journal of the American Medical Association for November 1970 (Vol. 214, No. 8), states:

> ". . . the trend at many schools is toward greater use of a wider circle of community hospitals for clinical teaching. The development of new, separate, 'clinical campuses' at some distance from the university center is a feature of the future development of several medical schools. Free mobility of students among the relatively autonomous units is considered possible, and even desirable. There are probably many advantages to the student, the educational program, the hospital, and the community in such a system. However, the difficulty of maintaining a unified, integrated educational program seems likely to be formidable . . . One thing is certain, the day is past when the medical school existed as a separate educational unit with a standardized, lock-step curriculum. In the new day, we should think rather of a medical university with broader, more diversified, geographically dispersed programs in which the beginning is blended with general university education and the ending is integrated with graduate specialty training in the hospital." (emphasis added)

The concerns which these analyses share in common -- the needs to train more doctors while also relieving the crisis in health care -- are the concerns of this report. How best to meet these inevitably connected needs in Ohio, and where to begin, represent the central questions it answers.

OHIO'S PROJECTED NEEDS FOR MDs

Last fall 462 new students entered the four colleges of medicine in Ohio -- 55 more than in 1969. At present each of the four medical colleges in Ohio is planning to expand the size of the entering class (see Table 1). It is possible that they will by 1975 be admitting over 750 medical students a year, or 288 more than this autumn. Facilities are being constructed or are planned to handle much of this expansion.

Ohio lags in training MDs

Ohio has long been a debtor state in medical education. Ideally, Ohio should be graduating physicians at least in proportion to its share of the United States population; actually, it is not. Ohio's current population is estimated at 5.22 per cent of the total United States population. In 1970 the nation's medical schools awarded 8,367 Doctor of Medicine degrees. Ohio's share, by proportionate population, would be 437. The number of degrees awarded by Ohio medical schools was only 337. (1)

---

(1) While there may in the future be more precise ways of establishing appropriate levels of MD output by states, the ratio of population is now the most widely used method. Also, because of extremely low attrition and slight increase through acceptance of transfers, the number of entering students in any one year closely reflects the number of degrees which will be awarded four years later.

There are at least two major reasons for a state to be concerned about the adequacy of the output of its medical schools. One is to assure equal opportunities for its citizens to pursue a medical career if they elect to do so -- an opportunity which is by no means equally divided among the states. The other reason is to assure the number of practitioners needed to deliver the necessary health services required by the citizens of the state. This relationship is one far from perfect in its cause and effect operation.

How many places a year are now available for the study of medicine in Ohio and what is the likely prospect for places a decade ahead?

Ohioans may lose in out-of-state admissions

In 1968-69 Ohio residents filled 450 of the 9,689 entering places in United States medical schools. This ranked the state sixth in the total number of its residents who went to medical school somewhere in the United States. (Ohio ranks sixth in population.)

The 450 successful Ohio entrants were distributed as follows:

In Ohio -

Ohio State University	156
University of Cincinnati	72
Case Western Reserve	45
	273

In out-of-state schools -

Privately supported	140
Publicly supported	37
	177
Total	450

How many Ohio residents were unsuccessful in their quest for a place in medical school that year? The figures are as follows:

Applicants receiving 1 or more acceptances	463
Applicants not accepted	468
Total number of applicants	931
% applicants accepted, Ohio	49.8
% applicants accepted, National Average	47.9

For the year 1968-69 the residents of Ohio who sought an opportunity to study medicine fared slightly better than the national average. This record was achieved only by virtue of the fact that nearly 40 per cent of the Ohio matriculants went to medical schools located outside of the State of Ohio. The future of these opportunities in out-of-state schools is somewhat tenuous as pressures mount on most schools, public and private, to consider more in-state applicants. This pressure to exclude out-of-staters will surely increase as more and more of the private schools seek and obtain state tax support, and as the

pressure grows on all medical schools to take an aggressive role in improving health care in the regions of a state in which they are located.

Existing Ohio medical schools plan major expansion

Ohio medical schools are making an impressive effort to increase the number of new places for the study of medicine. In the current academic year (1970-71) Ohio's four medical schools admitted 462 new students as follows:

Ohio State University	216
University of Cincinnati	110
Case Western Reserve	104
Toledo Medical College	32
Total	462

(Source: The medical schools)

This total represents an increase of 86 over that of two years previously, 1968-69, almost the equivalent of a whole new medical school of average size. Today there are 1,580 students in medical schools in Ohio.

All four schools have major construction plans in various stages of completion which carry commitments for further significant expansion

of entering class sizes. Our consultants asked the schools to indicate possible targets for entering students and total enrollment for 1975 and 1980. The figures and the qualifying comments appear in Table 1.

Table 1
Medical School Enrollment
In Ohio - 1970-1980

	1970	1975	1980
Ohio State University	216/703	334/1002	393/1179
University of Cincinnati	110/436	192/768	192/768
Case Western Reserve	104/377	160/640	200/790
Toledo Medical College	32/64	64/256	150/580
Total	462/1580	750/2666	935/3317

Comments:*	First column--entering students Second column--total enrollment
Ohio State University	Present class has an additional 8 repeaters; higher figures only possible if new facilities are built. Upper limit might be 265 without major facility additions.
University of Cincinnati	$50,000,000 building finished by 1973. Making up for attrition by admitting Ohio transfers which are very hard to find.
Case Western Reserve	New building not yet available; will be able to handle 200 toward end of decade. Figures exclusive of MD-PhD candidates which might be as high as 60.
Toledo Medical College	Flexible program permits larger enrollment and students to graduate early if they desire to do so, which 90% are expected to do.

*It is impressive that the schools are willing to undertake the expansion which these figures indicate. Doing so will naturally involve additional capital for which state and federal support will be necessary.

Private versus public medical education

Medical education in this country has long been a product of a dual system of public and private support. In 1968-69 the distribution of entering students was as follows:

	No. Schools	No. Students Admitted
Publicly Supported	53	5281
Privately Supported	46	4482

The private medical schools have, of late, met increasing difficulty in financing their operations from traditional resources. Several have begun to accept assistance from state tax resources and several more are seeking such support. A sizeable number are now said to be in danger of closing without federal and/or state tax help. It is quite unlikely that the private schools can be expected to add significantly to projected expansion on the basis of private funds alone. It is fair to assume at this time, in view of the serious financial trouble in which private higher education finds itself in the United States generally that almost all medical schools, at least by 1980, will receive their major support from state or federal funds.

What is Ohio's fair share?

One way to calculate what a state should do to provide places for the training of doctors is use the proportionate population method mentioned earlier. This might be called the fair share approach. The following Table 2 indicates the percentage of the nation's total population that Ohio's population represents since 1960 and as projected through 1980. Actual United States Census data for 1960-70 and recent projections by the National Planning Association for 1975 and 1980 were used as sources.

Table 2
Ohio and United States Population
1960 - 1980
(in millions)

	1960	1970	1975	1980
United States	179.3	204.8	218.6	234.5
Ohio	9.8	10.7	11.3	11.9
Percentage	5.46%	5.22%	5.16%	5.07%

(N.B. 1970 figure is uncorrected and does not include members of armed services and other persons overseas.)

Assume that Ohio should provide in its medical schools enough places to meet its fair share "quota" as indicated by the resulting percentages. Then, applying these percentages can give Ohio's fair share for each

major national projection of medical school expansion current today. Ohio's several projected fair shares obtained in this way are given in the following Table 3.

Table 3
Estimated Need for New Students
In United States Medical Schools

	1970*	1975	1980
Carnegie	10,400	14,700	17,100
Ohio's share	543	759	867
AMA	10,400	13,700	16,000
Ohio's share	543	707	811
AAMC	10,400	15,078	15,078
Ohio's share	543	779	766
Other	10,400		20,000
Ohio's share	543		1,014

N.B. . Ohio's share--based on percentages of nation's total population established in Table 2.

. Carnegie figures--used highest estimate of need reported.

. AMA estimates--based on reports of schools and continuation of trend projected by AED.

. Other--not a published figure, occasionally attributed to the United States Public Health Service.

* For the year ending in June of 1970.

Ohio's four medical schools supplied their estimates of future growth for use in this report. Their total planned expansion by 1975 comes remarkably close to Ohio's fair-share needs for that year given in Table 3. Ohio plans range from a surplus of 43 to a deficit of 29, depending on which fair-share estimates are used. If we take a more conservative estimate of what the colleges in Ohio are capable of achieving (as reported in the draft of the Ohio Master Plan), the deficit will be considerably larger, in this case from 59 to 79 entering students. (2)

By 1980 the situation improves somewhat. However, if the national trend is to invest more extensively in MD training than in paraprofessional training, with a target of 20,000 new students, Ohio would be a deficit state even with the tremendous efforts which the schools have indicated they might attempt.

Where will applicants come from?

A question of importance in this connection is, will there be qualified applicants to fill an increasing number of places in Ohio and elsewhere?

---

(2) The present draft of the Ohio Master Plan calls for 703 entering students as the maximum class to be realized during the 1970's.

As shown previously, Ohio residents accounted for 931 of the total applicants to medical schools in 1968-69. In that year less than half of Ohio's, and of the nation's, applicants were successful in being accepted. There seems little doubt that an adequate number of well-qualified students can be found to fill all of the new places that can be created through the next decade in view of the continued upward trend predicted in college enrollments.

Can Ohio schools expand?

What might be an optimum enrollment to expect of the existing medical schools in Ohio, assuming, of course, that reasonable support for operations and expansion will be provided?

There are, in 1970, 22 medical schools in the nation with more than 500 students and 8 with enrollments in excess of 600 students. (In Ohio, only Ohio State currently has over 500 students.) These figures suggest that a number of states and schools, working together, have been able to expand existing facilities very substantially. Generally, the major limitations on expansion of medical schools are psychological, not physical or educational. If the decision is made in Ohio,

as we think it could be, to substantially increase the number of MDs trained, the goals of 750 entering places by 1975 and 1,000 by 1980 seem attainable. (3)

The conclusion from the foregoing seems clear: On the basis of what would appear to be Ohio's responsibility for provision of opportunity for her citizens, and national responsibility for medical school entering places within the next decade, these needs can be met only by increasing considerably the capacity of the four existing schools in Ohio. Ten years from now three of these four schools would be larger than all but the six largest schools today (Indiana 885; Illinois 816; Michigan 812; SUNY-Brooklyn 791; Tennessee 764; Jefferson 736).

While the evidence is that the existing schools can expand, this expansion

---

(3) We would point out that Toledo's plan to accommodate only 64 entering students by 1975 means that it is moving slower than the AAMC indicated was possible with a new school when it recently recommended that 12 new schools be opened between 1970 and 1975 to accommodate 100 new students per year per school. If Toledo kept pace with the recommendation of AAMC, an additional 36 students could be accommodated in Ohio medical schools, or a total of 786 by 1975. To reach a capacity of 1,000 students by 1980, entering classes might be as follows:

Ohio State	400
University of Cincinnati	250
Case Western Reserve	200
Toledo	150
	1,000

cannot be achieved without substantial support. There are different ways to achieve these increases, some of which we will discuss in the balance of our report.

Factors in physician supply

Making exact estimates of the shortage of physicians is a difficult task of limited value. Many differing statistics can be cited. Perhaps the most meaningful data are those published by the USPHS relating the number of non-federal, active physicians providing care to the civilian population of the states. According to this source, the number of physicians in Ohio per 100,000 civilian population on 1 January 1968 was 129. The average for the United States was 132. Such figures do not, of course, reveal anything about the distribution of physicians -- which may well be more important than total numbers in determining how well needs are met.

Although there is a relationship between the presence of a medical school in a state and geographic area and the number of practicing physicians in that area, this correlation is not so great as is often believed. Recent data regarding United States medical school alumni, as of 1 January 1968, showed the following:

	Total No.	From Private Schools	From Public Schools
Practicing in State of Graduation			
No.	108,009	52,443	55,566
%	42.8%	37.0%	50.2%
Total Graduates	252,633	141,898	110,735

What success has Ohio had in retaining the graduates of its medical schools to practice within the state? The following calculations are for all graduates through 1964. The last three classes have been deleted from the 1 January 1968 report since an overwhelming proportion of those recent graduates had not yet established a permanent practice locale due to intership, residency training or military commitments.

School	Total Graduates in Practice	In Ohio No.	In Ohio % of Total
Ohio State	3664	2176	59%
Cincinnati	2992	1418	47%
Case Western Reserve	2790	1279	46%
Totals	9446	4873	51.6%

Compared with the 42.8 per cent figure for the United States, Ohio has had better than average success in retaining its physician graduates.

As of 15 March 1969, Ohio had 11,998 licensed physicians practicing within the state. Of these, 47 per cent received their medical education in one of Ohio's three schools; 26 per cent received their medical education in a foreign school; 27 per cent received their education in another United States medical school.

The factors of internship and residency

Medical schools are, however, complex institutions. They are responsible for the instruction of far more than candidates for the MD degree. Among the "other" students associated with a medical school are the interns and residents who are serving at the teaching hospitals. These interns and residents are attracted to the hospitals by the personnel who make up the clinical faculty of the affiliated medical school.

Over the years the medical-school-affiliated hospitals attract more and more of the interns and residents. This trend is clearly shown by comparison of the most recent data, for 1968-69, with that of five years earlier, for 1963-64.

Table 4
Trends in Clinical Affiliation

	Medical School Affiliated Hospitals	Non-Affiliated Hospitals
Interns		
1963-64	4,336 (45%)	5,300 (55%)
1968-69	7,156 (69%)	3,308 (31%)
Residents		
1963-64	17,016 (59%)	12,279 (41%)
1968-69	27,634 (79%)	7,160 (19%)

The real significance of this medical school influence on attracting practitioners to its region (along with much other valuable data regarding factors in the selection of a location in which to practice) has been the subject of an interesting study conducted over a long period of time by Dr. Herman Weiskotten and associates. (4) His study has tried to determine the various factors that influence where a physician ultimately will establish his practice. The study has involved successive five-year interval classes since 1930, the latest being the class of 1955 (data on the class of 1960 are now being collected for analysis).

---

(4) Unpublished data for the class of 1955; for data on the classes of 1950 and preceding years see the Journal of Medical Education 35 (12)

The data developed tend to support similar findings from the medical school alumni survey (see table, p.28). For the 1955 class sample, the percentages of graduates practicing in the same state in which they attended medical school were:

All Schools - 48.6%
Public Schools - 61.1%
Private Schools - 36.9%

The relationship between practice location and state of residence prior to attending medical school has still more influence, since the percentages practicing in the same state as that of prior residence were:

Public Schools - 64.0%
Private Schools - 55.6%

In addition to the two factors discussed above (location of medical school and location of residence prior to attending medical school), two more factors influence the ultimate location of practice: where the internship was taken, and where the medical residency (if any) was served.

Data on the two latter factors are not yet available for the 1955

graduating class, but for the sample of 2,353 MDs in the 1950 class who did take residencies:

25% were in practice in the same state as the one in which they had had all four -- prior residence, medical school, internship and residency.

21% were in practice in a state different from that of any of the four.

10% were same as residency training only.

7.5% were same as residency and internship.

7% were same as residency, internship and prior residence.

6% were same as residency, prior residence and medical school.

5.5% were same as prior residence.

4% were same as prior residence and medical school

Only 0.7% were same as medical school only!

From the above it is evident that among those graduates who proceed to residency training (and today this includes about 85 per cent of the new MDs, there is a higher correlation between where they had their residency and where they ultimately practice than between even the location of the medical school that they attended and their location of practice.

TRENDS TOWARD EDUCATING BETTER MDs IN FEWER YEARS

New concepts are emerging in medical education which will likely have bearing on Ohio's medical school needs and plans within the next decade. Also, greater involvement of various other educational and health care facilities in the state may permit significant expansion of numbers of students in the Ohio medical schools.

Year-round study may reduce years and raise capacity

One striking example of the spirit of imaginative enterprise developing in medical education today is now being tried out by several medical schools across the country, including Ohio State. This plan calls for a change of the medical school curriculum from the traditional four calendar years to three using year-round operation.

Such change, if proven feasible, would have three distinct impacts on physician production:

1. At one time a double class will be graduated.

2. The same physical facilities can accommodate one-third more students (4 classes x 100 = 400 = 3 classes x 133).

3. If a physician can begin practice one year younger, one man-year of service to society will be added for each graduate.

The basic medical sciences may be studied before medical school

Widespread trends in medical education call for a reassessment of the basic medical sciences in the medical curriculum. Medical schools assumed at one time almost total responsibility for teaching the sciences considered fundamental to the practice of medicine, and devoted almost the entire first two years to teaching both fundamentals and some clinical applications of those sciences. Much change in this approach has begun to take place. This idea is very compatible with the position of the AMA which we referred to earlier in the report. As these basic sciences have matured in their own right, and their bodies of knowledge have increased, more of their fundamentals have been offered in good university science departments. This makes it possible for the medical student to learn as an undergraduate (or graduate student) a portion of what once was deferred until medical school.

As a result, the time devoted to the basic sciences in the medical curriculum has progressively decreased in recent years to the equivalent of one year, in the majority of medical schools. (This holds true if pathology, which is generally not regarded as a pre-clinical subject, is excluded.)

Experimental programs are now under way in several schools on the first year of the traditional medical curriculum -- used for study of the basic physical, biological and social sciences fundamental to clinical medicine. Their prime purpose is to see if that year's work can be provided equally well in good, strong university departments already experienced in teaching science to graduate students. If the experiments succeed, the number of students prepared to begin studying medicine at the clinical level (involving patients with disease or disability) could be greatly increased. Increases would be possible because the students could get their pre-clinical preparation in the wide range of science facilities at colleges and universities.

At the present time Ohio does not have all of the requisites for developing many such alternatives to the first-year medical school curriculum. And the curricula of Ohio's medical schools are not now arranged

to make it convenient for a student to enter with second-year standing. But should major national trends develop in this direction, Ohio could readily work out such plans. Doing so would be facilitated by the close physical proximity of Ohio's medical schools to major universities. And if plans like these were developed, the input of students to the four medical schools could be greatly augmented.

Medical schools must lead in curricular innovation

The medical schools themselves are the key ingredients in the working of any such plan. They must first arrange their curricula to provide an appropriate entry point at the beginning of clinical instruction. This clinical portion of the total span of MD education is the one of greatest importance, and the one that can be carried out only by a faculty of dedicated, academically oriented, full-time physician-educators. It is in the early stages of clinical instruction that the future physician is shaped.

The unique contributions made by the medical school teaching faculty begin declining near the end of the current curriculum, however. The final medical school year has long been viewed with some question in academic medical centers. It appears to be squeezed between the

quasi-professional clerkship roles of the traditional third year and the post-MD year of internship. In consequence, some current thinking now points to combining the last year of medical school with an internship. If properly worked out, this step would have the advantage of saving one entire year of training without risking professional deficiencies.

The clinical years possibly taught region-wide

Medical educators in the past have been reluctant to allow much if any clinical teaching to be done outside of their primary teaching hospitals. Their attitudes may have stemmed in part from the early days of proprietary medical education. But this viewpoint, too, has begun to change. Medical educators increasingly realize that there are now sizeable numbers of well-qualified practitioners who were known to be good teachers when they were at the medical centers as interns and residents. This insight is bringing about a new look at the teaching potential of hospitals and clinics not formerly used for clinical teaching. Actual development of use of this untapped teaching resource can result in a substantial increase in the clinical teaching potential for present medical schools. Drawing on this

resource would enable medical schools to accommodate more students entering at the clinical instruction level from multiple basic-science feeder institutions.

New developments like these could obviously have far-reaching effects on medical education planning for a decade hence. Sound planning must envision new roles for medical schools, including much greater association with university science departments. Of even greater potential importance, far-sighted planning could conceivable project the medical schools into a regional coverage role, patterned in some respects after the fundamental concepts of the Regional Medical Programs of the Federal Government. Under such arrangements a medical school would have increasingly close ties with several hospitals and clinics for teaching and learning on all levels, pre- and post-MD. Out of these affiliations perhaps newer social structures will evolve for the delivery of health care.

Ohio is fortuitously favored for such regional development by the location of its existing medical schools and universities (see Chart I, p. 40). While the ultimate boundaries may later be redrawn an initial southwestern Ohio districtmight comprise 15 counties having approxi-

mately 2,439,500 people with the University of Cincinnati in its midst. The Northwest region might have 21 counties containing 1,404,181 people with the Medical College of Ohio at Toledo as its focal point.

Central and Southeast Ohio, with 30 counties and 2,010,290 population, could relate to Ohio State. Northeast Ohio presents a somewhat more complex problem because of its large population -- 4,688,044 residents of 22 counties. Appropriate adjustment of the boundries might permit some sharing of this area between Ohio State and Case Western Reserve. Certainly the excellent communication and transportation networks of Ohio would permit flexible adjustment of boundaries for optimum benefit to the public.

Obviously, such factors as those discussed above must be weighed in any projection of future facility and program needs. Emerging new ways of achieving the goal of more physicians may prove more beneficial in the long run than the building of new, free-standing and expensive medical schools. All such factors must be carefully evaluated in formulating the most desirable path to follow.

Chart I
Suggested Health Care Planning Regions
State of Ohio

Possible Priority
1970-72 - Northeastern
1971-73 - Southwestern
1972-74 - Southeastern
1973-75 - Northwestern

THE MEDICAL SCHOOL ROLE IN MEETING HEALTH CARE NEEDS

Whether viewed in terms of producing MD graduates in proportion to its population, or in providing spaces in medical schools so that an adequate number of Ohio citizens will have opportunities for medical education, it appears that the four schools in Ohio with maximum effort could meet projected needs for the next decade and possibly beyond.

However, in view of the many changes being proposed in medical training, it may be premature to attempt to make enrollment projections or physician needs beyond the next five years. The advent of three-year programs, the diffusion of educational and clinical experiences outside of the medical center, and an expanding role of the medical school in the delivery of health care, all could bring quite drastic changes in the way students are accommodated and in the number that any school can handle. We must assume that the medical school capacity for training students will increase considerably in the next decade and beyond. This conviction led us to note earlier that, with concerted effort, the existing four schools will probably be able to accommodate as many as 1,000 new students by 1980.

The future health care system is uncertain

The major difficulty in projecting needed enrollments or other goals at this time is that there is wide discussion and speculation about the form and nature of the nation's health delivery system in the years ahead. Some, of course, have estimated that a delivery system depending heavily upon technicians using computers and other devices of modern technology will not require as high a doctor/population ratio as is true even today. On the other hand, the Bureau of Health Manpower from some of its studies believes that there would be an existing shortage of possibly 50,000 doctors even in the event that care systems such as those typified by the Kaiser-Permanente program or the Health Insurance Plan of New York were widely in effect. The Bureau of Health Manpower has not yet published either goals or targets. However, its projections indicate that if the number of new medical students can reach some 15,000 by the middle to latter part of the 1970s, the shortage of doctors it discerns would probably be offset to a substantial extent by 1980.

There is, however, growing agreement in the education and health fields that changes in medical education must be geared to what now appear to be likely changes in the pattern of health care delivery.

It would be wrong to assume that there is general agreement today on the nature of the required changes. But disagreement mainly concerns various forms of improvement needed. A consensus does exist that change is essential. About it the Carnegie Commission noted:

> "There is agreement that change is inevitable and imperative and there is some consensus about its general outline."

Changing the nature of health care

While being indefinite about the nature of the emerging character of the health care delivery system, the Carnegie Commission in its recent report did identify a number of major features of such a system to meet future needs. These included:

1. The spread of prepaid group practice plans such as the Kaiser-Permanente program, the Health Insurance Plan in New York and others.

2. Health team care will be greatly emphasized under the leadership of a physician or dentist and with the support provided by allied health personnel specialities.

3. Increased emphasis will be put on extra hospital care

using a wide variety of health care facilities, including neighborhood clinics, special ambulatory centers, home-making services and other family services of various kinds.

4. Much extended involvement of the government in an increased recognition that the health of the nation is a public responsibility and the right to good health care is one of the most important ones in an advanced society, including, of course, provision of some type of national health insurance.

5. The continual increase in knowledge and technology in the biomedical sciences will make increasingly more complex the techniques used for diagnosis and treatment. Included will be the expanded use of computers, telephone interconnections and other devices for diagnosis. This knowledge increase will put tremendous stress upon adequate programs of continuing education, another strong feature of health care delivery in the future.

Health care, the Commission feels, will be quite highly organized in the future. It has put a great deal of attention on its health education centers coupled with the typical medical schools to provide this structure. The Commission even raises the question as to whether there will be organized personnel in the form of a national health corps or something similar to the National Public Health Service to administer health care.

There are examples of progress now being made throughout the country in all these directions.

If, in fact, these changes are beginning to be felt, how do they relate to medical education as known today? What new kind of medical education institutions would best benefit from, and coordinate with, these accelerating developments in health care delivery?

Future social concern of schools

For the state of Ohio or any state planning to meet future needs, the most important question to consider may no longer be simply how many doctors should the medical schools train. Rather, the pivotal question seems to be what role will the medical schools play in the total health care of the people through the rest of this century. Of

singular importance here is whether the medical schools -- which historically have seen their mission as teaching institutions -- will respond to broader social concerns than they do at present. The Panel feels very strongly that the medical schools of the future should have such broad concerns with the physical well-being of Americans. Assumption of the tasks involved no longer really is a debatable matter. And the response required must be built into the ongoing activities and programs of all medical schools. Certainly any state which wishes to move, as Ohio should, in the direction of statewide planning for health science medical education generally will want to have this social policy approach at the top of its list of important decisions to be made.

Adequacy of proposals for new schools

The Panel has given considerable study during the months of its investigation to the proposals submitted by the various communities in the state of Ohio concerning their strengths and aspirations for future medical training. The Panel also examined the various programs maintained or being developed by the existing medical schools. As reported earlier, review of the existing schools indicates their capability of expanding sufficiently to meet the need for larger numbers of

medical graduates. However, with respect to the relationship between existing schools and expanded programs of health care, it is the Panel's impression that much additional planning still needs to be done.

There is no doubt that Ohio's present facilities, clinical and educational, are such that establishing one or more new medical schools of conventional type in Ohio would be possible. Also, local enthusiasm and the availability of qualified students and of university and and clinical resources could make the establishment of a new medical school feasible in Cleveland, Akron, Kent, Youngstown, Dayton and even possibly in a location such as Athens. However, most of the plans that we have seen still identify the medical school function strongly as an MD training assignment and give minimal consideration to the institution's role in the larger and long-range problems of delivery of health care. Admittedly, each proposal recognizes that the existence of a medical school, regardless of its features, has an impact on the area's health care through attracting larger than average numbers of applicants for internships and residencies in the school's affiliated hospitals.

In the Panel's judgment, the establishment of a number of new medical schools may help further the delivery of health care but it is a very expensive alternative for the state to adopt. It would be entirely feasible to increase the number of MD graduates and of new medical school places for Ohio residents by founding a new medical school in northeast Ohio or elsewhere in the state. However, the goal of correcting the inadequacies, inequities and inefficiencies in the delivery of health services would not be accomplished solely by increasing the MD graduates or by adding one or two new medical schools.

When Panel members visited various areas, discussing basic problems with educators, doctors, community planners and others, it was repeatedly their impression -- and this too was often noted in reports prepared for the Regents -- that the shortage of doctors was given as the main argument for establishing a new medical school in an area. This, then, reveals the public consensus that the problem is not just one of training more doctors. It is a problem of inadequate provision of total care. If the nation is now short of MDs (as the Bureau of Health Manpower indicates), Ohio certainly shares in this deficit. And no doubt the Ohio communities having the fewest affiliations with established medical centers suffer the most. It is, of

course, a social fact that rural areas and the urban areas with high poverty indices have the least affiliations. The suburban areas around the major cities tend to have more affiliations and hence to be much less seriously affected.

Health care and clinical arrangements

The internship and residency situation, as discussed earlier in this report, has a decided impact on the distribution of the supply of physicians and much to do with the adequacy of regional health care. The Panel also noted that medical school affiliated hospitals draw better personnel. The situation in Ohio can be illustrated as follows. The figures available for 1968 indicate that of the 624 interns on duty in Ohio, only 139 are graduates of Ohio medical schools. Two hundred and forty-six or roughly 40 per cent of the interns on duty in Ohio were graduates of foreign medical schools (not including those of Canada). Furthermore, this means that 475 of the 624 interns had to be recruited from outside of Ohio or the country. It is understandable from these facts why many community leaders feel that the immediate solution to their problems of health care is the establishment of additional medical schools. The situation is equally serious with

respect to residencies. Estimates made in this study indicate that between 70 and 75 per cent of the residents in the hospitals of Ohio must be recruited from outside of Ohio.

There can be no question that the university medical center as it is known today has achieved a tremendous advance in the improvement of education, in the development of new ideas and in the care of individuals. It is also true that such centers, which frequently cost from $100 to $150 million to build and many millions of dollars per year to run, are extremely expensive solutions (and, at best, only partial solutions) to the unmet social task.

In the Panel's view, the preoccupation of planners for the field of health sciences in the future should be with delivery of health care. The care aspects here are that adequate numbers of doctors are in the right place, at the time needed, and provided with essential facilities and aides.

Too much is known today about the possibility of new approaches in health delivery arrangements to equate all future planning of the health of the people of Ohio with merely adding to the numbers of

professional graduates. Such an approach fails to take other major problems into account. These include such problems as the distribution of manpower and the continuing education of manpower as these relate to health care training and delivery service needs.

A POSSIBLE STATE PLAN

The Panel is convinced that in terms of supplying requisite numbers of MD graduates Ohio can and should depend heavily, at least during the next decade, upon the four medical schools to expand their enrollments. This can be accomplished in a major way by extending the clinical training -- pre- and post-MD -- in ways more closely allied to the delivery of health care. Implicit in this extension of the clinical training is the very important idea of the medical school extending its concern and broadening its coordinating function for clinical training over the major region of the state in which it is located.

The four existing medical schools in Ohio provide the major bases from which initially a broadening of clinical training should occur. The evidence is that medical school affiliated hospitals provide the most attractive clinical arrangements. There should be more of these arrangements in each region in order to greatly inhance the attractiveness of the more remote areas in these regions for internship and resident training. As the decade draws to a close, a substantial amount of pre-MD clinical training may be carried out as well under these broadened arrangements.

The state of Ohio is in a fortunate position to broaden the involvement of its medical schools in the longer range problems of health care delivery through expanding clinical training arrangements. These new arrangements will have to be carefully planned, the medical schools will have to be involved from the outset, new staff at the state level may be needed and in the long run some new types of co-ordinating institutes or new types of training institutions may have to be created.

Major features of a state plan

One plan which might be considered would develop as follows on the assumption that the state of Ohio wished to plan a much closer relationship between the delivery of health services and medical education. This plan might be overseen by the Board of Regents at the request of the state legislature.

1. Meaningful targets for numbers of entering medical school students must be set for 1975 and 1980. There must be sufficient MD graduates in the state to satisfy Ohio's fair share based on the ratio of Ohio's population to the nation's total. Our analysis indicates that the presently planned

expansion of the existing medical schools satisfies this goal without building additional medical schools, at least of the type now in existence.

2. All intership and resident positions in the state should be made the responsibility of the four medical schools in the state, distributed on some logical regional basis and co-ordinated by the Board of Regents (see Chart I, p. 40). This move recognizes that the time for training a physician to the point where he can take on medical care responsibilities on his own extends from his entrance to medical school through the residency training period. In addition, it more clearly relates the manpower development responsibilities of the university to the needs of society.

3. The type, characteristics and quantity of internships and residencies should be adjusted from time to time to meet the shifting needs for health care in the various regions. For example, if it is established that half the physicians of Ohio should be primary care physicians (family care physicians), then the number, type and characteristics of

the residency training programs in the state could be modified so that this goal is obtainable. A further example could be changing the character of all intern and resident training programs so that ambulatory care becomes the central core of all training experience for many residents instead of hospital care being the central core. The ability to adjust the training programs to meet the needs of the citizens of Ohio is the key to this proposal.

4. Provision should be made for a gradual increase in the use of hospitals and clinics in each region in connection with the pre-MD clinical training of students.

5. Each teaching hospital should be the locus of training and utilization of non-MD level skills that could perform many of the present functions reserved for the MD. Delegation of functions should be stressed under proper supervision. Training as a team should be stressed.

6. The Office of the Chancellor of the University System should be given the responsibility of stimulation and participation in the development of the goals for Ohio to improve

the delivery of health services through the existing university system. It should be further given the responsibility of establishment of a system-wide development program which can serve as the strategy for the university-based input (including pre-MD, intern and resident training) of skilled manpower to meet these health service improvement goals. It, of course, would need a small staff to carry out these responsibilities.

Since the types, quantity and quality of skilled manpower is one of the major keys to the delivery of health services, the University System should play a major role in solving the problems of the delivery of health services. The University System must have mechanisms to mold and fit its manpower development programs to meet the needs of the people for health services of the entire state.

7. One or two Health Services Experimental Stations might be established at one or more of the existing medical centers in Ohio. These centers should be basically financed by the state. They should be charged with carrying

out experiments to correct the inadequacies, inequities and inefficiencies of the present health services delivery system. They should be responsive to questions posed by the state legislature, the Board of Regents and others. They should report publicly to the Board of Regents and the state legislature annually.

8. Planning should get under way for the possible necessity of establishing, at least in northeast Ohio (probably outside of Cleveland), a center or some other arrangement to coordinate implementation of various aspects of this plan. The northeast is a large area and, since two schools might be involved -- Case Western Reserve and Ohio State -- a coordinating center may be desirable. This center we discuss later under the title of a Health Science Graduate Center.

9. Identification should be made of one or two major universities in the state to work closely with the medical schools in expanding programs in the allied health professions including especially doctor assistants.

10. Prototype experiments should be launched in which modern

advances in communications are applied to instantaneous and very wide delivery of special health care services. These experiments could explore means by which doctors anywhere in the state could consult with specialists in distant cities on difficult cases over closed-circuit TV. They could try out a highly sophisticated central service for interpreting the electrocardiograms of heart patients relayed to the center from anywhere in the state. Many more possibilities could be investigated -- such as electronic doctor's office visits. As these possibilities suggest, communications hold much promise for improving the delivery of certain types of health services.

The tenor and direction of these recommendations is in no way intended to depreciate the intent and efforts of educators, physicians, and lay citizens interested in new medical schools in Ohio. Given the willingness of the Ohio legislature to invest the money, any one of the locations suggested in Ohio could establish a very good medical school comparable to many in this country today.

Investment by the state along the lines of these suggestions has at least three major advantages:

1. It will not require the capital outlay needed for new medical schools.

2. It has a much higher probability of solving some of the growing problems of the delivery of health services than does the establishment of a new medical school at this time.

3. It will offer greater diversity in the training opportunities to which new MDs will be exposed in their career preparation.

The Panel is convinced of the necessity in Ohio for statewide planning in the highly interrelated areas of medical education and health care. As noted in the outline for a possible state plan, this planning responsibility should be in the Office of the Chancellor.

The Panel's preference is for the establishment of a position of vice chancellor with primary responsibility in the area of health sciences and the allied health fields. The position is recommended to assure adequate planning and evaluation with respect to not only the new directions in MD education but the whole area of health sciences

and allied health professions. What follows, then, is a description of the qualifications and the duties of the Health Vice Chancellor.

The Position of Vice Chancellor with Primary Responsibility in the Area of Health Affairs:

Preparation: He should have an earned doctoral degree (MD, a PhD preferably in one of the health sciences, or a public health doctorate; ideally, he would have both an MD and one other doctorate). (There are now three similar positions in states with multiple medical and health science campuses; one is filled by an MD, two by PhD's.)

Experience: In order to have full appreciation for operations it will be essential that he have experience in line operation of a sizeable enterprise with responsibility for budget preparation and management.

Duties: This position will require the ability to recognize and predict trends, to make long-range plans in accord with changing times, to translate plans into action programs and to get these programs carried out. The Vice Chancellor should also

be able to keep constantly aware of immediate needs, to make informed, accurate judgments and to command the respect of those with whom he works. It goes without saying that he must have the authority commensurate with his responsibility.

Among the specific duties of such an officer should be the following:

1. Review and evaluation of budget requests, and legislative presentation and liaison.

2. Continuous assessment of needs in the state with coordination among units to fulfill those needs.

3. Conduct of cost/benefit studies to assess alternative means of achieving goals.

4. Appraisal of health care innovation: As a participant or observer he should be aware of all studies and experiments in the state and nation pertaining to new ways for delivering health care.

5. Leadership of innovation: He should be creative and

imaginative in suggesting projects and programs within the units of the state system to keep it in the forefront of health science education and health care.

6. Conduct of Federal relations: He should be knowledgeable about the workings of the Federal bureaus, sources of information, and key government personnel.

The new Vice Chancellor will need to initiate or implement trends in medical education that can be capitalized on to strengthen the important future interdependence of health care and medical education while increasing the numbers of medical school graduates.

Major guidelines of a state plan

Certain key trends observed by the Panel are listed below. We urge further planning along these lines because of the obvious advantages which, in our judgment, will accrue to the people of Ohio. These trends include the following:

1. What is now thought of as the graduate training of doctors -- the internship and the residency -- will become in time an integral part of the responsibility of the medical school or

medical center. Various satellite hospitals throughout a region will become closely integrated into the medical school system. In these hospital centers, there will be physicians serving in the capacity of clinical faculty members of the affiliated medical school.

2. There is a trend already apparent towards moving a substantial amount of pre-clinical biological and biochemical sciences "back into the university setting." That is, an increasing number of universities and colleges might well be affiliated with medical schools and medical centers and conduct much of the initial instruction now given in the medical schools. Ohio, with its carefully planned regional system of colleges and universities, would be an ideal state for such relationships to develop rapidly.

3. The range of clinical environments will be greatly broadened, and there will be, in our view, a great deal more attention in what is now the pre-MD clinical years concerned with ambulatory care. Most medical schools now devote 80 per cent of the clinical training to hospital situations. But planning

should take into account the possibility that in the future 50 per cent might be hospital-based and 50 per cent concerned with ambulatory services. Doing this would place the clinical work in a variety of new environments, some possibly quite a distance from the medical school-medical center complex.

4. As the clinical environments tend to be broadened, there will be less and less distinction between what is now considered three separate levels of medical training in the clinical domain: the pre-MD clinical, the internship and the residency. It may well be that these eventually will fuse and a much enhanced range of environments will be provided. Again, with the dispersion of the clinical environments, there will be the capacity to accommodate more students than is the case under present teaching arrangements.

5. Extending medical school affiliations throughout a region will establish a network of connections between the medical school-center and its region with respect to health care -- including the obvious dispersion of individuals associated

with the university as full-time faculty members but serving as supervisors of clinical experiences in affiliated hospitals throughout the region served by the particular university.

6. There is considerable hope, of course, that the practice of family medicine will grow in the nation. A new Academy of Family Practice has been established and examinations have been introduced for qualifying candidates interested in family practice as a specialty. The post-MD requirement is for three years of additional training that may be either all residency or combined internship and residency. It should be noted, however, that the AMA is recommending the elimination of the internship by 1975 or shortly thereafter -- a possibly important factor to consider in planning future clinical programs.

7. In the future, students may carry out their total preparation for medical practice in three related institutions, not necessarily on a single campus: a college or university (three-five years), a formal medical school (two-four years), and a career preparation institution emphasizing the clinical experience.

A PLAN FOR NORTHEASTERN OHIO

If Ohio develops increasingly close relationships between medical education and health care, what are some possibilities in northeastern Ohio? Our assignment began with a concern for this region which has (and will for the next decade continue to have) the largest population concentration in Ohio. The metropolitan areas of Akron, Canton, Cleveland and Youngstown-Warren together constitute 33.5 per cent (according to the figures of the National Planning Association) of the total population of Ohio. Projections by the same organization for 1980 indicate that these communities will then have 36 per cent of Ohio's population. If one were to include the non-metropolitan population, this region would continue to have nearly half the population of the state.

The northeast is an ideal area for the state to begin to experiment and innovate in establishing much closer relationships between the delivery of health care and the education of physicians. The presence in it of the Case Western Reserve Medical School, which in our judgment will become increasingly dependent on the state and which the state should welcome in lieu of building another medical school,

is a tremendous asset. The region is further strengthened by the presence of some of the state's great public universities including the University of Akron, Cleveland State and Kent State. It also has a number of hospitals and other facilities that might be drawn together into a joint effort for the improvement of health care delivery in co-operation with medical education.

The plan in this region will obviously have to develop in stages. The long-range goal we have in mind is the development in each of four major regions of Ohio (see Chart I, p. 40) of a program of activities integrating solutions to the problems of medical education and health delivery care. In basic outline, such a plan for northeastern Ohio might be as follows:

1. The medical school of Case Western Reserve would become part of the state system of medical education with the state providing subsidies on the same basis as that used for the medical schools now in the state system. We would assume that Case Western Reserve would lower its tuition for Ohio students since the subsidy system, presently based on the difference between $6,000 and tuition, would make no difference to the university in the total income it would receive.

2. Cleveland State University would be the center for the development of a variety of programs in allied health fields. That university already shows a very keen awareness of the nature of the training programs required in the allied health professions and its offerings should develop increasingly in coordination and cooperation with the medical school at Case Western Reserve in its new role as part of the state health care system.

3. There would be established at the outset arrangements in the Akron, Kent, Youngstown-Warren area for affiliations between the medical school at Case Western Reserve and the hospitals to provide for enlarged and improved clinical training of the kinds described earlier.

4. The Board of Regents in cooperation with Case Western Reserve would make its statewide TV network available for use in clinical instruction and continuing education. This would provide transmission linkages between Columbus, Akron, Cleveland, Kent and Youngstown, with a viewing radius broadly throughout this whole region. Whereas

Columbus will be the center for this "operations network" of the Regents, program differentiation into the receiving regions should be entirely possible.

5. TV programming for each region would help coordinate continuing education programs for practicing physicians which could be developed uniquely for the region or transmitted uniformly from Columbus throughout the state because of the statewide interest and application of most programs.

6. The establishment of a Health Sciences Experimental Station either at Case Western Reserve or at one of the state universities in the region such as the University of Akron would be of highest priority. This center would conduct research on health education needs, appraise and evaluate the requirements of state support, evaluate proposals for expanding the role of medical and allied health professions education in health delivery care and train administrators in the new emerging relationships between health education and health delivery.

7. The system of internship and residency placements and

supervision would eventually put the intern and resident on the payroll of the state to help assure commitment of such positions in the various hospitals, clinics and other health care delivery agencies to the region!s needs.

8. Arrangements would be worked out by Case Western Reserve on an experimental basis under which some of the MD candidates' clinical work could be offered in affiliated hospitals in the region, and possibly some of the basic sciences study for MD aspirants could be offered in nearby universities.

9. Establishment of a family care residency in a number of affiliated hospitals is of high priority.

10. An immediate inventory of community hospitals in the whole northeast region establishing their capabilities for playing a role in this new program including their willingness to establish certain residencies (i.e., family medicine) along lines likely to be followed in the practice of medicine in the future.

11. The creation of an experimental delivery unit in two or three key areas to be used in the training of allied health personnel to participate in team arrangements in the conduct and delivery of health care. These might operate out of the medical schools or in connection with certain of the community hospitals. There would be a clear effort, however, to increase the role of the non-MD graduates including experimentation with prepaid comprehensive care programs. Johns Hopkins University has experiments in two communities by which medical students are going to learn to practice medicine within a milieu which emphasizes preventive and ambulatory services. This approach will develop a community base for the education of physicians and other types of health professionals and technicians needed to operate coming new systems of care in this country.

12. Establish, after careful inventory of practicing physicians and developing health care problems in northeast Ohio, estimates of the likely needs for medical personnel of all kinds in the next decade and beyond and ensure that the

residencies and graduate clinical programs are increasingly directed to support these needs.

13. Plan the development of a unique new regional institution which would eventually furnish the kind of continuing supervision in this program which the medical school may not be able to provide. Such an institution, which might be called the Health Sciences Graduate Center, is described in the succeeding chapter.

This plan is not offered as an economic substitute to the creation of another medical school in northeastern Ohio. In the Panel's judgment, this is a more responsible and responsive action to be taken in line with the often expressed concerns of the people of Ohio, northeast and elsewhere, about the adequacy of health care. We are concerned that medical schools today do not lead in the coordination between health care and medical education which we believe will be so important in the future. Through these recommendations Ohio can, within the context of its higher educational system, identify the health care needs of the state and its various regions and proceed through educational means to meet these needs. The arrangements

we have suggested offer the most sophisticated form of relating society and manpower needs to medical educational potential that we know of, anywhere in the nation.

The Panel feels that the rapid changes taking place in health care, especially the almost certain advent of some type of prepaid national health insurance, means that any state planning its future in health care and medical education should be as flexible as possible while orienting its movement increasingly towards the closer relationship between formal medical education and health care delivery. This fact along with the many reasons noted earlier suggests the desirability of moving cautiously toward the creation of another medical school in Ohio. The evidence is considerable now of the potential of the existing schools at least to meet MD needs in terms of numbers through the balance of this decade. The comprehensive plan offers great flexibility.

No one should assume that the arrangements suggested -- even though they make greater use of established hospital facilities, lead toward increasing the health care responsibilities of persons with training of less than eight years and involve in the long run the reduction in

the length of time that is required for the MD degree -- can be undertaken at no cost to the state of Ohio. This plan* can be implemented at much less cost than establishing another medical school of the traditional type (no doubt at about one-quarter of that cost). But, as is noted in the plan, there are certain new responsibilities being assumed for which state funds will be required.

---

* The plan we have created is a regional one in which medical education and health delivery are viewed as part of a single problem. An important aspect of this is the better planning in the future of hospital facilities in recognition of their role as health care delivery centers for an increasingly higher percentage of ambulatory patients. In other words, what is going to be more important is the type of hospital available in an area -- one that assures adequacy in health delivery and the availability of health care to the majority of the population -- rather than the presence of a medical school. In the planning of the northeast region it will be extremely important that this matter be kept in mind. This will be important also as Ohio develops a physician's assistant program.

A NEW INSTITUTION IN CONCEPT: THE HEALTH SCIENCES GRADUATE CENTER

In discussing in the previous chapter a comprehensive plan for northeastern Ohio, we noted that the large population and diversity of the region might make it difficult to develop the coordination called for by the plan from the medical school at Case Western Reserve, and that some type of special center might be required. This coordinating institution might be called a Health Sciences Graduate Center. Its introduction would be a logical regional development as a next step beyond the coordination provided by the medical school.

Activities of a Health Sciences Graduate Center

Assume, for purposes of concrete visualization, that the logical place in which to establish a first Health Sciences Graduate Center in Ohio would be in the Akron-Kent-Youngstown area. In personnel, the Center would consist of full-time and part-time faculty members of one of the now-existing medical schools. These medical faculty members would be physically based at one of the universities in the region, like the University of Akron. In many instances, where appropriate, the faculty would hold joint appointments.

In some instances, the faculty member's primary function would relate principally to his clinical specialty with secondary responsibilities in one of the basic science departments of the university at which he is located. Or the reverse could be true.

Two examples can be given. Suppose that a Health Sciences Graduate Center were located at the University of Akron or Kent State. One full-time faculty member would be a professor of medicine at Case Western Reserve. In that connection, his principal function would be to supervise the university-sponsored residency programs in the hospitals of the area. He would also hold an appointment at the University of Akron, where he would secondarily teach graduate students in, say, the biochemistry department.

The second example would be a professor of biology at the University of Akron who also has a secondary appointment at Case Western Reserve through the Health Sciences Graduate Center. At Case Western Reserve, he would teach genetics to medical students.

There could be other mechanisms for interrelating the existing medical school-medical centers with the Health Sciences Graduate Center besides cross-appointment and cross-curricula.

The Health Sciences Graduate Center would have the following functional responsibilities:

1. Act as the director of medical education for all teaching hospitals in the area.

2. Develop the curricula for all intern and residency programs in the area with special emphasis on the health manpower needs for that area.

3. Recruit and supervise the interns and residents. Also, supervise the community clinical instruction of medical students assigned from the medical center.

4. Coordinate training programs with the health care needs of the area, working with medical and area planning groups.

5. Coordinate and conduct continuing education programs for the health professionals of the area.

6. Provide graduate-level courses in the basic medical sciences for interns, residents and others.

7. Initiate programs to develop needed new types of practitioners, such as family physicians or physician assistants.

8. Act as the interface between the existing university-based medical centers and the community needs for health services delivery.

At a later time, if another medical school in Ohio proved to be necessary, one could be quickly and at minimal expense created out of a Health Sciences Graduate Center.

SUMMARY AND CONCLUSIONS

Ohio is afforded a unique opportunity in its history to take steps now which will contribute significantly to the health of its citizens for a number of decades to come. These steps will increase the attractiveness of Ohio as a place in which to live and work. They can open the way for the rest of the nation in the planning of systems of medical education and health care. In this report the Academy Panel has:

- Focused continually on the absolute necessity of drawing these heretofore disparate elements of education and prevailing quality of health care into close and continuing working relationships.

- Called for more planning in relation to health care needs.

- Repeatedly recognized the need to make better use of trained manpower and teamwork in improving the general health and well-being of citizens of Ohio.

- Recognized that many more doctors need to be trained in every state of the nation. It is conceivable that, with its

existing schools, Ohio could more than double the number of persons trained because of its already existing excellence in facilities, its already high degree of sensitivity to regional needs and its very well-distributed comprehensive centers of educational excellence.

- Demonstrated the importance of the graduate training of doctors and the importance of having the interns and the residents become more and more the responsibility of the medical schools on a regional basis.

As the delivery of health care changes and as medical education and health care draw closer together, it is logical to assume that the education of doctors and, for that matter, of other health personnel will change in recognition of this increasingly close relationship. If it does not change, then no matter how many doctors we might train, the nation's health picture may continue to decline as it has tended to do in the last two decades.

In addition the Panel has:

- Made a number of proposals in this study which point to

the need to expand existing medical schools, to move them more closely into the health care delivery area and to modify their programs in ways that include shortening the length of time which one now normally spends in a "medical school."

- Recognized that estimating future needs for educating specific numbers of doctors may be a very difficult job.

- Suggested the outlines of a plan for northeast Ohio which could well become the model, with obvious appropriate variations, for the other three major regions of the state currently served by medical schools.

It is possible that, as Ohio's plans unfold in the direction of expanding coordination and cooperation, new medical schools of a unique type might be created. They would be ones of a "new type" in that they develop basically out of the concept of health care delivery.

This is, in the Panel's judgment, an exciting prospect. Suppose that, out of the initial efforts of the medical school at Case Western Reserve to coordinate an expanded role for that school, there emerges a sense of growing need for a Health Sciences Graduate Center. It would then

be possible in northeast Ohio to eventually create -- say in Akron -- a new type of medical school-medical center, one which might develop at much lower cost than has been characteristic in the development of existing medical centers. Our optimism here is tempered by experience, however, which shows that even those schools with the most experimental beginnings eventually assumed a fairly traditional medical center approach with an owned contiguous teaching hospital and independent pre-clinical educational facilities.

The Panel's hope is that the plans articulated for the northeast, in which the key long-range element is the Health Sciences Center, can mature fast enough so that by the end of the decade it will be clear as to whether another MD degree-granting school is needed. In fact, the planners of this regional approach outlined in the report should keep foremost in mind the real possibility of creating a new type of medical institution serving vital education and health care functions throughout this region.

At the time of this study the Carnegie Commission on Higher Education recommended the creation in Ohio of a network of health education centers. The Panel believes that this excellent report will be

very helpful to Ohio or any other state which is planning the future of its health care delivery system. On specific points, the Commission did not see a present need for additional medical schools in Ohio. But it did suggest that Akron, Dayton, Lima, Mansfield and Youngstown-Warren create health education centers. Each of these health education centers, in the works of the Commission, would:

> ". . . be a local hospital. The center's educational program would be administered by university health science centers. they would train medical residents and MD and DDS candidates on a rotational basis. They would carry on continuing education for local doctors, dentists and other health care personnel. They would advise with local health authorities and hospitals. They would assist community colleges and comprehensive colleges in training allied health personnel, and in other ways they could help improve health care in their areas. We consider this development of basic importance. It would put most of the local advantages of a health science center 'medical center' into many localities which do not warrant a full scale center. This proposal would put essential health services within one hour of driving time for over 95 per cent of all Americans and within this same amount of time for all health care personnel."

There are obviously very close similarities to some of the Panel's proposals and those of the health education centers proposed by the Carnegie Commission. The basic difference, however, between the Panel's approach and the proposed health education centers is that:

1. The Panel's center might develop out of a carefully articulated regional concern for health care.

2. The center would be planned on the possibility that it could eventually become an operating degree-granting institution.

3. The primary responsibility of the suggested center would be to improve health care rather than having this as an incidental function in support of a traditional medical school complex.

The Panel has in a sense conceived a new educational health adjunct to play a special role in the nation in the future -- and not an agency to serve as an appendage of some existing medical school or training institution. The essence of the plan is this: the coordinating and planning function of the Health Sciences Graduate Center, and its total concern with regional health care needs in the context of education, would make it possible for every hospital and every clinic to be one way or another a health education center as defined by the Carnegie Commission.

There have been many excellent plans developed in Ohio. The Panel's

review of these, its visits throughout the state, and its conversations with laymen and professionals alike have convinced the Panel that Ohio is looking for both more and better medical care for its citizens. In the Panel's view, the major efforts for the next decade should be aimed at improving the health care of Ohio's people.

New institutions will have to be established, new personnel trained, new responsibilities assigned, and more funds expended. If these activities can develop more and more within the framework of keenly sensed responsibility, insightful planning and rigorous background work which has characterized the Board of Regents, Ohio will be the better and its citizens healthier. The Panel sees no more timely task for the Board of Regents, its excellent staff and the superbly-qualified educators of medical and health personnel now in Ohio than to plan this comprehensive health care future for one of the nation's major states.